

ABSTRACT OF THE DISCLOSURE

The invention concerns a method using an image guide consisting of several thousands of optical fibers, an excitation signal being emitted by a source, deflected and injected by turns into the optical fibers of said guide, each excitation point of the tissue in the fiber output emitting in return a fluorescence signal collected by said fiber, then detected and digitized to form an image element. According to a first aspect of the invention, the method provides for the focussing of the beam in the fiber output to excite a subsurface plane to produce a confocal image. According to a second aspect, the method provides for the production of a divergent beam in the fiber output capable of exciting a micro-volume of the tissue from the surface. The invention is characterized in that the method consists in deflecting the excitation signal at a speed corresponding to acquisition of a number of images per second sufficient for real time use and in detecting the fluorescence signal at a detecting frequency corresponding to a minimum frequency for sampling the fibers one by one. The invention enables in vivo, in situ and real time imaging.